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THE INDUSTRIAL SECTION, INDIAN MUSEUM

BOTANICAL SURVEY OF INDIA

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No school-room, no school-master, no burden of school-fees. No heavy load of note-books, no fatiguing exercises. But—all your learning, understanding and appreciation not even for a fraction of a rupee a week. This is the revolutionary new system of visual education that is provided at the Industrial Section, Indian Museum at Calcutta.

At the head of Sudder Street, near the crossing of the main thoroughfare—the Chowringhee, stands the majestic building of the Industrial Section, which for its imposing structure and design, is reminiscent of the old traditional Imperialistic style of Architecture. In it is housed a unique and comprehensive collection of India's vegetable resources and their products in Art and Industry. In the span of four-score and six years of its useful service to the country, it had added prestige to the Nation, as it provided an institution for the people to know a lot more than what was otherwise unfolded before them. So forcible has been its appeal throughout, that for the rich and the poor, the literate and the illiterate, the exclusive popular name "JADHU-GHAR" is a treasured symbol of education coupled with entertainment. And to the Foreign specialists, it is today "the best Museum of its kind ever witnessed", which registers its world appeal as vouched by the fine sentiments expressed.

Its story is one of years of struggle and construction, frustration and progress, beginning with the third quarter of the 19th Century.

International Exhibitions influence Museum Activities

The 18th and the 19th Centuries witnessed great Museum activities in England, Europe and elsewhere. For the wider appreciation of Art, Culture, Natural History and Economy of a country, several museums were established and zealously fostered. In London alone, many institutions of a National character sprang up, like the British Museum (founded in 1753), National Gallery, Tate Gallery (1897), National Portrait Gallery (1856), National History and Museum of Economic Botany at Kew Gardens (1759). The Great Exhibition of 1851 gave further fillip to enlarge Museums to cover new fields as also to institute new Museums. The Victoria and Albert Museum, and the Science Museum at South Kensington are best examples of Museums directly influenced by the great Exhibition of 1851. An institution under the name of "India Museum" came into existence in India House at London for the reception of all raw products and manufactures from India, under the charge of an Officer designated as Reporter on the Products of India to the Secretary of State for India in Council.

The various International Exhibitions which were held from time to time had a far reaching influence on many of the progressive countries in the world. Their effects were evident in India also. There came up a growing sense of realisation of the importance of the indigenous wealth of raw materials in the country, in trade and commerce. This is naturally to be expected as the lure of the Indies during the middle ages was its wealth in species and similar articles of commerce. With the gradual transformation of the "Trading East India Company" into the "Ruling Power", a sense of responsibility for the well-being of the people over whom it had established its supremacy appears to have cropped up as early back as 1786. With further changes in the social structure in England, consequent on the Industrial Revolution, the quest for the administration of the colonial subjugated areas appears to have shifted from objects of mere trading to raw materials for commercial exploitations. Recurrent famine in Bengal especially is found to have influenced in exploring the possibilities of utilising alternative food substances for the people in times of cereal scarcity. This also naturally led to the search for all possible raw materials of economic importance in the country. For the various exhibitions which were held from time to time in England and Europe, samples of the products available in India were in great demand. All these factors naturally provided the necessary motive force for making a collection of Economic products of the then British Empire. It was in these circumstances that the idea of formation of an Economic Museum in

Bengal was conceived, which institution was destined to be transformed later on into the Industrial Section of the Indian Museum, Botanical Survey of India.

The Genesis of the Bengal Economic Museum

As already mentioned, India took active part in the numerous International and Colonial Exhibitions held from time to time during the 19th Century. The practical exploitation of Indian Art manufactures was one of the duties included in the programme of the Department of Agriculture and Commerce in the North West Province and Oudh, and that Department was called upon from time to time to provide collections for the various foreign exhibitions. To ensure a co-ordinated effort, several International Exhibition Committees were appointed and by about 1872, an exhibition committee was created on a permanent basis at Calcutta, which was the seat of India Government then.

The efforts put in by the several International Exhibition committees, and the great success they ultimately brought, clearly indicated both the practicability and the propriety of forming at Calcutta a complete collection of Industrial products of Bengal and of British India. Indeed the richness and variety of the collections contributed to the various colonial exhibitions should have created such a forcible impression that the formation of a permanent institution for the reception of all products of India, raw and manufactured, was inescapable. Men of vision soon set to work on such a project. In this, the name of Forbes Watson, who was Reporter on the Products of India to the Secretary of State for India in Council, at India Museum, India Office, London, would perhaps stand out foremost, and the scheme outlined by him about 1870 came out to be the basis on which an Economic Museum was planned and built up in later years at Calcutta.

Forbes Watson's scheme was to prepare and publish a Dictionary of Commerce for India, based upon an arranged Museum of Industrial products which he intended to establish in London. To carry out the programme, he proposed a central committee in each Presidency and Provincial capital, assisted by several subcommittees in the several districts of the Presidencies and Provinces. With this network of organisation, he expected to collect within three years from the commencement of the scheme, all the products of India, raw and manufactured, models of all implements, machinery incidental to the production etc., and also reliable and authentic information on modes of culture or manufacture of every product, its history, economics and other cognate matters. From the materials and informations supplied by the various committees, he proposed to compile the Dictionary. He had also recommended the formation of Museums at public expenses, in principal towns of India out of the duplicate articles collected by the various local committees.

There had also been similar reactions in other quarters, quite independent of the scheme outlined above. On the 26th July, 1873, Col. Hyde, who was then the Mint Master at Calcutta, forcibly advocated the formation of an Economic Museum in the following words, to Sir George Campbell, the Lt. Governor of Bengal.

"One of the great wants of this part of India, and of trade here generally, is a means of utilizing such information as has been collected in scientific Museums regarding the economic productions of the country, and of putting into a practical shape, useful to the trading public, the results of all the labours and research of the several Government departments, and officers, that have, from time to time, collected a vast amount of valuable information, but which is not as yet easily available".

"This has been forced on my notice—first by my own experience, and, secondly, by my daily finding with the public an ignorance regarding the resources of the country that should not exist and that would not exist if any practical means were provided for affording information on such subjects".

"As far as I can see the best method of supplying this want is by the establishment of an Economic Museum to provide for the public an easy means of references to such useful information as can be obtained from the collections and records of the several scientific departments of the Government".

"Roughly an Economic Museum would contain specimens of Minerals, Vegetable productions, Animal productions, etc."

Col. Hyde had also suggested monographs being written on each product.

Dr. Forbes Watson's reports on the Industrial Survey and Industrial Museums, were also sent from the India Office, at London to Sir George Campbell. He himself had realised the value and importance of organising a complete collection of the products in commerce and trade, and other raw specimens, and the great service they could do to the country. The various proposals received by him from time to time had no doubt created the necessary atmosphere, but the realisation of the objectives, was still only in the realm of expectancy.

A Prudent Member of the Judicature awakens the Conscience of an entire Nation

In following the early history of the Economic Museum, we have to revive our acquaintance with Hon. Mr. Justice Phear, one of the most important characters ever to engineer the project of an Industrial Museum. Till 1872, very few people had realised the tremendous influence that a Museum of Economic Products in our country could exercise, in educating the public and in shaping the economy of the Nation. Late in 1872, the then Hon. Justice Mr. Phear drew the attention of Sir George Campbell of the immense potentialities and the great possibilities that lay in these respects. Within less than sixteen months, his idea took shape in the form of a Metropolitan Institution, destined to serve the Nation in its educational and industrial spheres. A series of correspondence passed between Mr. Phear and the Lt. Governor, and in his communication of the 5th January, 1873, Mr. Phear pointed out that a Museum of products of Bengal, arranged on a comparative system and explained by a printed description of the circumstances of the producing process in the case of each article, including its history would form an easily accessible source of valuable information and instruction both to the Statesman and to the Trader—information which cannot then be obtained in any shape without the expenditure of great personal labour and time. He also stressed that such a museum should be located at Calcutta and should for completeness of comparison, be able to draw itself upon samples of products from all parts of India.

So forcible and so convincing had been Mr. Phear's advocacy for the Museum, that on the following day, the 6th January, 1873 itself, Sir George Campbell not only approved of the views put forth, which corresponded with his own, but also expressed his great anxiety to see to the fruition of the proposals. Sir George Campbell had also indicated the propriety of locating the new Museum at the great Imperial Museum at Calcutta, which was then just seven years old only, if suitable accommodation therein could be found. In the event of non-availability of space at the Imperial Museum, he also gave an alternative suggestion of erecting a structure at corner of Belvedere Compound, adjoining the Agri-Horticultural Gardens. Mr. Phear was thereupon asked to draw out a comprehensive plan for the proposed Museum. On 5th February, 1873, a scheme was made ready by Mr. Phear, and his note on the proposed "Industrial Museum", ran as follows:—

> "It is desirable that there should be in Calcutta readily available to the public, an arranged collection of the raw products of Bengal such as, seeds, grains of paddy, and the more important manufactured products such as, jute, silk, indigo, oils, sugar, country cloth, together with models of the implements and machines employed in the process of production of manufacture, the whole supplemented by a descriptive catalogue which should shortly and sufficiently state in regard to each specimen, the history of the culture or manufacture (as the case may be) to condition to which it is subject or under which it is successfully carried on, the uses to which the product is put, the nature of the market for it, or other factors of economic importance".

As proposals were taking definite shape, the Government selected a portion of the Customs House godowns, abutting on Dalhousie Square and had that place adapted to and furnished to some extent for the intended Museum, the site at the Belvedere grounds originally proposed having had to be given up. By the 15th December, 1873, the building on the new premises was ready for the purpose of the Museum. By 10th February, 1874, a working plan of the Museum was chalked out, which indicated (1) the scope of the collections and the manner of their acquisitions and (2) the formation of a committee to control the Museum, comprising of experts in specialised fields, Government officials, and representatives from leading firms.

On the 7th April, 1874, the Lt. Governor published the Resolution which constituted the Economic Museum Charter of Foundation. Thus within less than a year and half of sponsoring the cause of the Economic Museum, Mr. Phear had achieved a great distinction. A strong Central Committee to manage the Museum, with powers to appoint an Honorary Secretary was also sanctioned. The first Committee was constituted by Hon. Mr. Justice Phear, Col. Hyde (Mint Master), W. L. Heele (Inspector General of Jails), J. R. Bullen-Smith (a representative of a leading firm), H. B. Medlicot (Geological Survey), Dr. George King (Royal Botanical Gardens), Dr. W. Schlich (Conservator of Forests), J. Geoghegan (Board of Revenue, Govt. of India), Robert Knight (Bengal Secretariat), C. B. Clarke (Bengal Education Dept.), and Dr. Kannylal Dey (Asstt. Surgeon).

The above committee met immediately after on the 10th April, 1874, and elected Justice Phear as the Chairman, and at its second meeting held on the 15th April, 1874, Mr. H. H. Locke, was appointed as the first Secretary to the Committee. A small executive sub-committee was also appointed with the Chairman, Col. Hyde and Kannylal Dey.

Faith built this Unique Institution

To achieve the objectives of the Economic Museum, Mr. Phear had suggested the appointment of many competent local Committees at several districts of the Presidency, acting in communication with and under the direction of the Central Committee at Calcutta. Accordingly, several local committees were formed, and by 21st May, 1874, a memorandum was drawn up explaining the scope of the Museum and of the local committees. By this time Hon. Sir Richard Temple had succeeded Sir George Campbell as Lt. Governor, and under his patronage the Museum activities increased. When the Economic Museum went into an active phase, it had the co-operation of no less than 56 local committees of which 45 were District Committees, and 11 Sub-Divisional Committees. By this network of organisations, collections poured in steadily for a number of years. The very first contribution to the Economic Museum on the very day of its institution on April 1874, was a most valuable set of cotton-series of the country, with English

Front view of the Industrial Section, Indian Museum—serving a useful need in the field of Economic Botany and Visual Education.

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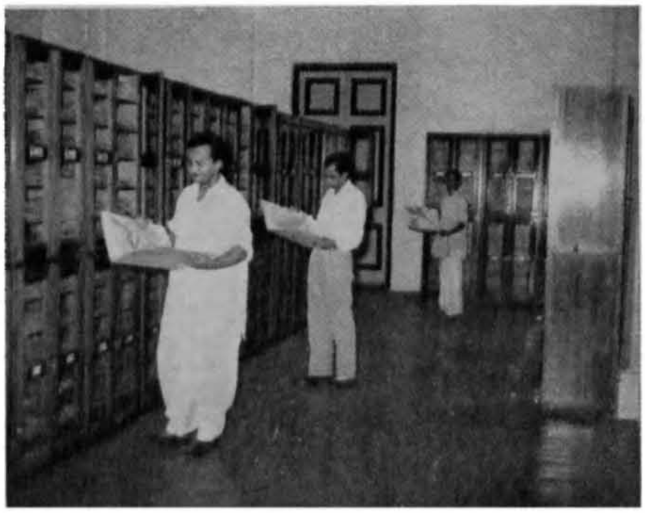


Inside view of the HERBARIUM of the Industrial Section where huge collection of specimens are deposited.

Artists at work to maintain the Plant Potrait Section.

A view of one of the bays in the large exhibition gallery, whose huge collection of botanical specimens of every description regularly receive treatment and inspection, involving constant vigilance and laborious work.

twists kept for comparison, comprising of numerous cotton-bolls of indigenous growths, the most beautiful of them being from Garo Hills, which entire series came as a generous gift from Lt. Governor Sir George Campbell himself. Officers of Assam Commission sent products of their Districts, and within a few years, the Economic Museum had made great strides, its collections consisting of cereals, maize, millets, pulses, oilseeds, oils, tallows, wax, gums, resins, dyes, drugs, condiments, farinaceous stuffs, sugar, spirits, vinegarm pickles, preserves, teas, opium, bhang, tobacco, salt, free-stones, slates, limestones and lime, coal, char-coal, ores, metal-wares, clays, fictile products, silk and silk-goods, cotton and cotton-goods, fibres, textiles, fabrics, paper-stuffs, paper, leather, harness, shoes, chicks, mats, reeds, bamboos, woods, fruits and fishes in plaster-casts.

Quite apart from the very wide range of specimens the Museum possessed, it had also extensive collections in particular series. By way of example, we may mention here that in Paddy series, the Economic Museum within two years of its organisation, had no less than 2415 samples of paddy, 1633 samples of rice, and 441 samples of ears in tact, with 1104 different names, each sample illustrating intrinsic and seasonal distinctions, so much so, it was acclaimed then that probably there did not exist elsewhere an equally extensive and valuable collection of this cereal. Likewise in woods and timbers, it had over 1000 specimens, represented from forests of India, Burma and Andamans. Its phenomenal growth began in 1874, and by a team of committees, in a few years thousands of exhibits were consolidated and marshalled to form the Nation's most unique Museum of Economic products. And the amazing array of objects led the way to a better appreciation and a fuller commercial exploitation of our indigenous products. The Museum had such a success that names like Sir George Campbell and Justice Phear, still command great respect, as men who contributed to the Museum's dynamic spirit. The Museum's appeal had been tremendous both in the homeland and abroad, and the reason must be its high efficient service. Its vast and varied collections had much to convey about things that did matter to every body. At the Paris Exhibition held in 1878, a Gold Medal, the highest prize, was awarded to the Secretary of the Museum Committee, for the collection of Bengal and Assam Teas, the series being a duplicate of the collections formed by him for the Bengal Economic Museum. That was indeed a fitting compensation and a reward for the valuable services the Museum rendered.

The Economic Museum receives Priceless Collections

Within a few years of its organisation, the Economic Museum came to be regarded as *the* place for the safe custody of valuable materials. Under the direction of J. Forbes Watson, who was then the Reporter on the Products of India, India Museum, London, a valuable collection of specimens and illustrations of the Textile Manufactures of India was made, under the orders of the Secretary of States for India, and in 1866 under the title of "Textile Fabrics of India", they were got up in 18 large volumes of which 20 sets were prepared, each set being as nearly as possible, an exact counterpart of all the others. The 18 volumes forming one set contained 700 specimens, each sample indicating the character of the whole piece from which it was cut, and thus enabling the manufacturers to reproduce the article if he wished to do so. Thus the 18 volumes had each 700 working samples. The twenty sets made came out to be regarded as "Twenty Industrial Museums" illustrating the Textile Manufactures of India and promoting trade operations between the East and West, in so far as these articles were concerned. These sets of Textile Fabrics were made with an intention of setting up and promoting trade relationships with India. To quote Forbes Watson:

> "We know India now-a-days as a country whose Raw Products we largely receive. We pay for these partly in *Kind* and partly in *Money;* but Indian never buys from us what will repay our purchases from her, and the consequence is that we have always to send out the large difference in bullion, which never comes back to us, disappearing there as if it had been dropped into the ocean". . . . "A large amount of information has been drawn together regarding all classes of Indian manufactures and of Indian products, and it is clearly of immense advantage to this country and to India that this knowledge should be so disseminated as to prove *practically* useful—in other words, so as to influence directly the interchange of commodities".

When the 20 sets were thus got prepared, the original intention was to distribute all of them in Great Britain, but later on, on further considerations, it was decided to send a certain number of sets to India, to facilitate trade operations between the two countries. Certain conditions were laid down on which the gifts were to be made, and the foremost was that the sets should be assigned in trust, and that due provision should be made for its permanent protection, at the same time affording freedom of access to all properly recommended and practically interested persons. In deciding what places should be chosen for the distribution of the sets, the places of commerce more immediately interested in textile manufactures came first, and after that such places as possess Industrial Museum or other institutions calculated to afford the necessary protection and facilities of access. It was ultimately recommended that of the 20 Sets of volumes, 13 would be distributed in Great Britain, and 7 sent to India.

In terms of the conditions laid down, 13 sets were distributed among the Chambers of Commerce of Belfast, Bradford, Glasgow, Halifax, Liverpool, and Manchester; the Industrial Museum of Scotland in Edinburgh; the Industrial Museum of Ireland in Dublin; the Huddersfield Mechanics' Institution; Towns of Macclesfield and Preston; Borrough of Salford for the Royal Peel Park Museum, and India Museum, attached to the Department of the Reporter on the Products of India, India House, London.

The seven sets intended for India were forwarded under the instructions of the Secretary of States for India in Council for deposition in Calcutta, Madras, Bombay, Karachi, and in such places in the North West Province, in the Punjab, and in Berar, as the respective Governments of the Divisions may decide upon.

In these volumes were included samples of turbans (Vol. I), garment pieces for men (Vols. II-IV), garment pieces for women (Vols. V-VI), Muslins, plain and embroidered (Vol. VII), Muslins, calicoes etc. (Vol. VIII), Muslins and silk (Vol. IX), Cotton piece goods (Vol. X), Cotton piece goods and towellings (Vol. XI), silks and cotton piece goods (Vol. XII), satins and silks (Vol. XIII), Silk piece goods (Vol. XIV), Silks and cotton (Vol. XV), Woolens (Vol. XVI, XVII), Woolens, Cashmere shawls and clothings (Vol. XVIII).

The Memorandum on the Distribution in Britain and India of the collection of specimens and the Textile Manufactures of India, was drawn up at India Museum, London, on July 1866. The Indian Museum at Calcutta had just been established, the Act No. XVII of 1866, pertaining to it, having received the assent of the Governor General of India in Council, on the 23rd March, 1866. It was natural, therefore, that Indian Museum, Calcutta, was chosen for the receipt of the set intended for Calcutta. But that institution appears to have been in some difficulty in accepting this responsibility, as about the time of receipt of the set, the Trustees were facing problems in respect of accommodation, and erection of suitable buildings in Calcutta, for their own Trust objects. This ultimately resulted in the repealing of the Act No. XVII of 1866, and re-enacting it with modifications, as in Act No. XXII of 1876, which received the assent of the Governor General on the 17th December, 1876. The Bengal Economic Museum had then been established in 1874, and that institution being more directly concerned with such exhibits as those of Forbes Watson's collections, it was ultimately decided that deposit the set at Economic Museum. Under the orders of the Trustees of the Indian Museum, Calcutta, J. Anderson, the then Curator of the Indian Museum, informed the executive committee of the Bengal Economic Museum, with his letter of date 1st November, 1876, that the Governor General in Council had sanctioned the transfer to the Economic Museum the set of Dr. Forbes Watson's Volumes on the Textile Fabrics of India, together with a number of medals and certificates relating to International and Agricultural Exhibitions which were held earlier. On the 13th November, 1876, the Economic Museum took over the most valuable set of Dr. Forbes Watson's Textile Fabrics of India in 18 volumes, which thus came to the Economic Museum as a presentation from the Trustees of the Indian Museum. Along with this set, the Economic Museum also took over 2 vols. of equally valuable collection of Watson's Textile manufactures and Embroideries, and 15 volumes of Thomas Wardle's specimens of Fabrics dyed with Indian dyes, medals (gold, silver and bronze), and certificates of merits awarded at Paris Exhibition of 1867, for such classes of products and manufactures of India, as carpets, silks, embroidery, Indian Arms, jute, tanning materials, cereals, teas etc. The executive committee of the Economic Museum thereupon ordered that Watson's and Wardle's collections be placed on suitable stands, and exhibited in the Economic Museum, and visitors to be allowed to inspect them only in the presence of the assistant in charge of the gallery. The medals and certificates were ordered to be framed and hung up in suitable places.

It would be of interest to mention here that the 35 volumes of Textile Fabrics and Fabrics dyed with Indian dyes, by Forbes Watson and Thomas Wardle, are still to be seen carefully preserved in the Industrial Section, Indian Museum, Calcutta.

Economic Museum helps to build other Museums

The demand on the Economic Museum for specimens had been great. For the various foreign exhibitions, it sent many valuable and interesting collections. The Indian Products and manufactures had attracted the attention of many foreign Museum authorities, who were placing indents on the Economic Museum. By way of illustration, a few cases alone are referred to here. At the request of Mr. Reeve, through George King, the then Superintendent of the Royal Botanic Gardens at Sibpur (Calcutta), the Bengal Museum supplied on 7th April, 1877, several Indian Raw Products for the Glasgow Industrial Museum. On 10th January, 1878, A. Mackenzie, then Secretary to Government of Bengal requested the authorities of the Economic Museum, to assist Mr. A. de Scala, Director of Oriental Museum, Vienna, in his endeavours to collect specimens of Indian Raw products and manufactures. The liberal attitude of the Committee can well be appreciated from their orders to the Secretary to the Committee to give away samples of everything Mr. A. de Scala may express a wish to have, of which the Economic Museum possessed duplicates, in respect of personal ornaments, weapons, musical instruments etc. Similarly by March 1878, 543 specimens of dyed fabrics, samples and tints produced of indigenous dye stuffs were sent to the Austrian Consul for transmission to Vienna for the Oriental Museum. Some institutions in India were also the beneficiaries. As stated already, the Economic Museum had a valuable collection of geological and other mineral specimens. The growth of the collections had naturally brought much pressure on space and to release the pressure on space, the Executive Committee of the Economic Museum decided at their meeting of June 1877, that the mineral specimens with all other minerals in the Museum to be made over to the Geological Survey of India. They had decided on this for the additional reasons that they had not the means of dealing with such specimens either as regards their proper conservation on their due exhibition, and as the Geological Survey Department gives attention to exhibits and specimens to illustrate Economic, Geology and Minerology, it was unnecessary to duplicate such collections in Calcutta. With this resolution, the Economic Museum transferred to Geological Survey, specimens of Gold, Lead, Iron Ores, Copper Ores, Clays, Limestones, Sandstones, Laterites, Building stones, Soap stones, Saline earths, Slates, Talc, Coal and others. Similarly, ethnological specimens of purely scientific values were made over to the Indian Museum, Calcutta.

Scientific Work not lost sight of

Besides incorporation of products in the Museum's collections, the various products were also scientifically investigated as to their sources, vegetable, animal or mineral. Accurate botanical identifications of plants yielding dyes, fibres etc. were also made, by instituting collections of plants from various sources, and subjecting them to critical investigations. As early as September 1877, the Committee realised that time had arrived when various classes of products in the Economic Museum should be examined and reported upon by commercial experts. By that time, as a result of their earlier actions, reports on certain products had already been completed. Silk Fabrics were entrusted to Mr. Buskin, Rice to Mr. Theodore Stewart, Tea to M/s. Thomas and Co., Fibres to Mr. Petrie. Dr. George King and Dr. George Watt were approached for assistance in completing a series of figures of Economic plants, more especially those indigenous to Bengal. The drugs and medicinal plants were entrusted to Rai Bahadur Kannylal Dey, who undertook the work to be done on the plans adopted by the Pharmaceutical Society of Great Britain, giving a description of all the drugs known in this country. This work was to include at least 40 plates. R. Eames was required to prepare a catalogue of the cotton collections in the Economic Museum.

It was, however, later decided on 7th September, 1787, that in as much as considerable time must elapse before a full descriptive catalogue can be prepared of the numerous collections, simple guide books to Museum collections should be drawn up and printed to indicate the scope and object of the Museum and the extent of collections in the Museum. Later events, unfortunately, impeded the progress on many of the projects, in these respects.

An 18-year struggle to stabilise the Economic Museum

It was a strenuous 18-year struggle to find a permanent and local habitation for this Economic Museum, from the date of the first proposal to the date of its ultimate incorporation in the Indian Museum in 1891. It may be recalled, that when the proposals for the Economic and Industrial Museum materialised, the Lt. Governor Sir George Campbell suggested as early as January 1873, that this Museum may be located at the Indian Museum, Calcutta. This, however, yielded to an alternative suggestion to locate the building for the proposed Economic Museum, in the corner of the Belvedere grounds adjoining the Agri-Horticultural Gardens. For some reasons or other, this also did not materialise. The Museum actually had its first location in a selected portion of the Customs House godowns, abutting on Dalhousie Square, after having the place adapted and furnished for the intended Museum. The premises thus came ready for occupation of the Museum by 15th December, 1873. In the years following, its collections grew, and by 1877, the Economic Museum at this location had four halls, with arrangements of exhibits as indicated herein. In the 1st Hall, were exhibited samples of raw produce and manufactures of Bengal, and Assam, geographically under districts with maps, giving the extent of the particular portions of the Province of which the products lie before the visitor; in the 2nd Hall, were displayed Rice, Cereals, Pulses, Oils, Dyes, Teas, Resins and Waxes, in 21 almirahs; in the 3rd. Hall, were shown coloured drawings of Indian Economic Plants, and Silks, Jute, Fibres, Tans and Dye stuffs; and in the 4th Hall, were arranged the collections of Timbers, Bamboos, Canes, Gums & Resins, Pottery, Metal-wares, Stone utensils etc.

By December, 1877, Mr. Donaldson, who was then the Superintendent of Jail Manufactures, expressed his desire to donate a complete collection of all industries carried in the various Jails in Bengal, and he sent a good collection of articles of Silk, Woolen, Cotton, Coir and others. The Museum Building did not afford sufficient space, and thereupon the Executive Committee applied to Government for additional space, besides the four halls, then utilised for the Museum purposes. It was suggested that an additional hall might be built on a portion of the open space between the Northern end of the Museum Halls and the godowns, and Mr. Nightingale, the then Executive Engineer, prepared the plans for a hall of 73′ × 40′ with skylights etc. The entire structure was estimated at Rs. 7103/-, which met with the approval of the Chairman of the Committee on 14th January, 1878. The Lt. Governor's visit to the Museum on 6th February, 1878, accelerated the construction of the building when he expressed himself to be much gratified at what he saw at the Museum, and promised that he would sanction the building of the additional hall which the Committee had applied for. The building of the additional hall was sanctioned in March, 1878, and in May, 1878, the Public Works Department started constructing the building. As the building project started, several exhibits had to be removed, and the whole of the Northern End, and other portions of the Economic Museum were thrown into great disorder, and in this condition the Museum continued till November, 1878, when the new Hall was completed and made ready for use.

The completion of the new Hall did not, however, help to improve the condition of the Museum, which had run into great disorder. For, the site was required for the office of the East Indian Railway Company, and the Committee were asked to vacate the building hitherto used and utilised for the Economic Museum. A serious problem thus cropped up, quite unexpectedly. A Small Committee was soon formed with Justice Princep, who had succeeded Justice Phear, as Chairman, H. B. Medlicott, T. S. Isac, and P. Donaldson, to find out a suitable accommodation for the Museum. The Chairman initiated steps and negotiated with General Tiegler, who then lived in Zurich in Switzerland, to secure on rental basis a portion of his premises at No. 1, Fairlie Place. But the limitations on funds imposed by Government precluded the possibility of obtaining this premises for the Museum. Thereupon, search for alternative accommodation had to be vigorously made, and at last one was found at the corner of Hastings Street and the Strand, bearing Nos. 12, Hastings Street and 6, Strand Road. M/s. Gillanders Arbuthnot were the agents for the premises, and on the 29th May, 1879, the rent was agreed upon at Rs. 700/- p.m. and the terms were also stipulated as on four years lease or giving 3 months notice at the end of any year, terminating the arrangement. These conditions having found acceptable, actual tenancy of the premises commenced from the 16th June, 1879. As accommodation was available, it was found that the Secretary could also live on the premises, to devote more time to Museum work. Alterations to the premises at Hastings were also needed, and the collections numbering over 14,000 specimens, 5-6000 duplicates, books, records, papers etc. could not be removed to the new premises before 30th March, 1880.

Even after the acquisition of the premises at 12, Hastings Street, the Museum could not be brought to a perfect state. Till July, 1882, it was not possible to open the Museum to the public as it was in great disorder. The chaos and confusion that existed then can be visualised from the following account. Many of the large classes of exhibits were not exhibited at all. They were all lying in odd corners and on cupboards. The exhibits which had such a fate, were Tanning Materials, Leather, Gums & Resins, Metals & Metalwares, Clays and fictile products, bamboos, mats, salt, stones, slates, limestones, and scores of other articles. The Geographical Hall cases were not set up at all since their removal from Customs House Godowns. The large room on the ground floor, intended for Timber specimens were found to be in the most complete disorder. The Timber specimens themselves were lying in great confusion, mixed up with empty packing cases, and boxes of spare specimens beyond recognition, and much of Museum debris of all sorts. One part of the ground floor had been appropriated by Mistris for workshop, and their tools and appliances had also added considerably to the general disorder. Thousands of labels were destroyed by insects, and the books belonging to the Museum, had been scattered, and no registers were kept to show the extent of the Museum Library. Thousands of specimens were destroyed beyond any possibility of identification and recovery. Above all, the accommodation was also found greatly too small for the proper arrangement and exhibition of all specimens. The Committee made further frantic efforts to find a better and more suitable accommodation on a permanent basis, and were contemplating to acquire the entire West Block of the Bengal Secretariat offices with 3 floors at Dalhousie Square, but by 15th July, 1882, it was understood from T. S. Simpson, Executive Engineer, that the building will not be available for the Museum for 2 years to come from the date, nor has it been settled how much space was to be given to this Economic Museum.

The Committee faced great difficulties. However, it was resolved that the Museum should continue to be located somewhere in the immediate neighbourhood of the business part of Calcutta.

To restore the Economic Museum to its former standard was a tremendous job. The difficulties that stood in the way also seemed to suggest that the Nation's most enormous collection of raw products and Indian manufactures, perhaps man's greatest achievement in Museum enterprise was running to disuse and destruction, soon after the first time they were exhibited. Years of uncertainty in respect of a permanent habitation, for this Museum, seemed to have brought on much frustration.

By 14th June, 1883, the first term of lease of 4 years, in respect of the 12 Hastings Street, came to an end. The Chairman thereupon sought the permission of the Government of Bengal to empower him to renew the lease of the premises for one year from the 15th June, 1883. In reply thereto, two telegrams were communicated to the Committee to the effect that no arrangements for renewal of lease of Economic museum premises be made, and that the Secretary should co-operate with Dr. Watt to remove the Economic collections to the Calcutta International Exhibition of 1883-84.

The Committee was rocked with surprise—the members had come to realise that the whole Museum was for a shift, and to be transferred to other hands. The removal of over 15,000 specimens, they felt, would undo the work of years, and render it a most laborious task to rearrange them properly. What was behind this sudden sweeping reversal of the Government's policy? Were they closing down?

Those were the speculations and the reaction was spontaneous. The Committee tendered their resignations on 16th May, 1883. But on the advise of the Lt. Governor, and on reconsideration, the Committee withdrew their resignations on 26th June, 1883. The Chairman, however, felt himself unable to alter his previous resolutions and on 3rd October, 1883, in place of Justice Princep, Mr. Cockerell was elected as Chairman.

According to the wish of the Government the entire Economic Museum collections were then removed and properly arranged for the Calcutta International Exhibition, which was opened on the 4th December, 1883, with the Economic Court as a temporary structure on the Maidan opposite the present main-building of the Indian Museum, on the Chowringhee side. This event marked the end of the old history of the Economic Museum, and the beginning of a new Chapter.

Indian Products for International Exhibitions

As already mentioned, Indian raw products and manufactures have been in great demand in International Exhibitions. On the 4th July, 1881, by a Resolution of the Government of India, Home Department, a new Department styled as the Revenue and Agricultural Department, Government of India, was constituted, and by the 6th September, 1881, it was further resolved that all matters related to the Exhibitions should be attended to by that Department. In 1878, Government of India invited contributions for the Sydney Exhibition. Subsequent requests were made for the Melbourne Exhibition of 1880-81. The Melbourne International Exhibition was the first one which the Government of India took part with a distinct purpose of turning it into practical use. A Central Committee was formed for Bengal Presidency with Mr. Buck, J. S. Gamble, J. E. O'Conor and T. S. Anderson as members. The establishment of a Tea Syndicate, through the agency of the Calcutta Chamber of Commerce, at the suggestion of J. E. O'Conor, had a pronounced effect on the development of Indo-Australian Commerce, and a large market for Indian Teas was opened in Australia. There had also been growing demand in Australia for Indian Coffee, Spices, Oils and Cotton goods also.

The Tea-Room in the Exhibition furnished with rich exhibits was the most popular attraction of the Exhibition. A most useful form of advertisement for Indian Tea was thus afforded. Following the Tea Syndicate, another institution was formed viz. "The Calcutta Tea Association" to push the sale of pure Indian teas exclusively. The Melbourne Exhibition, thus had shown development of new commercial lines and it established closer trade relationships between India and Australia. The Melbourne Exhibition was soon followed by the Amsterdam Exhibition of 1883. The co-operation of British India was enlisted through the Netherlands Minister at the Court of St. James, and on the 29th July, 1882, Government of India intimated of their intentions to send raw produce and manufactured goods, to cover up an area of 12,000 sq. ft. In that Exhibition, by far the largest of collections went from Cacutta, prepared by T. W. Holderness and T. N. Mukherjee. The appeal had been so forcible that J. R. Royle, while reporting on the Indian collections at the Amsterdam Exhibition of 1883, expressed on the 18th February, 1884, that there were signs that the knowledge of Indian Products gained by Continental merchants and others who visited the collection was likely to largely increase the commercial relations between India and Holland. Yet another grand success, for Government of India in its efforts made to establish trade relationships, through International Exhibitions.

While engaged in the collection and preparation of Exhibits for the Amsterdam Exhibition, Mr. Buck, recommended on 9th May, 1882, that a permanent collection should be maintained at the Imperial Museum at Calcutta, of raw products, fabrics, and industrial products and of art wares. He further impressed that in case of raw products, the initial collection should be of such bulk as to enable the Collecting officer to break it up into smaller parcels for distribution to Museums in India and abroad. He added that such collections being made at a scientific centre, would have the guarantee of correct nomenclature. A reference, thereupon, was made in June, 1882, by Government of India, enquiring whether suitable space could be found in the Indian Museum for Economic products. Although such an object was well within the scope of the Indian Museum, as laid down in the Act governing the Museum, the Trustees could not readily accommodate the collections, as the building had no more space than just sufficient to provide for due exhibition and preservation of the objects of Natural History and Archaeology transferred by the Asiatic Society. The Trustees were in favour of an extension of the Museum buildings to receive those collections. The practical suggestion made by him to set up a Museum of Economic Botany as a department in the Indian Museum became an accomplished fact in less than a decade.

The Great Calcutta International Exhibition of 1883-84 provided the opportunity to establish an Economic & Art Section at the Indian Museum, Calcutta. At the monthly meeting of the Trustees, held in December, 1882, the Secretary attached to the Bengal Public Works Department, verbally enquired if Trustees would consent to the Calcutta Exhibition being held on the Museum premises, and partly within the building. It was also proposed to the Trustees by him that a full length extension of the northern Galleries of the Museum, and the roofing of the quadrangle with glass could be made. They were sufficient inducements, and on the prospect of such a permanent advantage, the Trustees expressed their hearty desire to aid in promoting the success of the Exhibition. On a further consideration, the roofing of the quadrangle was given up, as undesirable and too costly and difficult. The Bengal Government, thereupon, started construction of temporary buildings for the exhibition on the southern side of the Museum Buildings. They also provided a house to which working collections were removed. Also a permanent building connected with the Museum was also erected on the Chowringhee frontage, and it was decided upon that this structure after having served the temporary purpose of the exhibition, may be devoted to the exhibition of the valuable series of Indian Art and Manufactures and Economic products, which had been collected by Mr. Buck, provided that was the wish of the Government of Bengal to transfer those collections to the Trustees. For that exhibition, responsibility fell on the Government of India in respect of collection of Economic products from all parts of India, preparation of ethnological specimens, collection of native agricultural implements, and preparation of catalogues of the economic products of India. The Provincial collections, hitherto belonging to the Bengal Economic Museum, were also arranged to be taken over by Government of India. Those trends of events indicated that not all was going smoothly with the Economic Museum. There were small, but possible signs of strain ; nothing that seemed to portend serious trouble for the immediate, but possible harbingers of future significance. Ultimately the huge collection of the Provincial Economic Museum, passed on to the Government of India.

Two officers were appointed under E. C. Buck, they being Dr. George Watt and Mr. T. N. Mukherjee. By the joint efforts of these two officers, Provincial and Imperial lists were prepared, of all the Exhibits that were displayed in the Economic Court at Calcutta Exhibition. The Economic Court itself was a temporary structure, and had included the entire collection of the Bengal Economic Museum, collections of Economic Products and Indian Art wares made by the Government of India, Revenue and Agricultural Department, collections from private individuals, trade samples contributed by Indian Chamber of Commerce and others purchased or obtained on loan.

The Exhibition lasted for a year, and when the exhibition came to a close in 1884, there were about 17,685 specimens.

Economic Museum enters a New Historic Stage

As already indicated, the Calcutta Exhibition was held in a small structure to show the very proud collections. The authorities and the Government of India, had no intention of closing down the show once for ever. After a year, they had come to a conclusion which resulted in what has become a unique institution. Main structures expanded, buildings rose, fittings were furnished, collections poured in, and orderly marshalling of exhibits followed. As the strenuous efforts of savants edged over the horizon of determination and purpose, well within a decade they revealed an extraordinary spectacle of a new institution which became undoubtedly the World's most complete and wonderful Museum of Art and Economy, not only because of its enormous and unique variety of collections, but also of the unparalleled list of special services it offered. The Economic and Art Court, that sprang up thus, became an integral part of the great Indian Museum at Calcutta. Its story, however, is also not without incidents, as the following narrative would illustrate.

The Calcutta International Exhibition was a tremendous success. The collections of the Bengal Economic Museum and the Government's Art Museum had (1) Collections of Indian Art products and manufactures ; (2) Collections of Economic products, principally of India ; (3) Collections of Ethnological objects, also principally of India ; and (4) small collections of Industrial products of Europe. The Art-ware collections occupied two courts, (1) the permanent annexe to the south of the Imperial Museum, and (2) Northern temporary corrugated ironsheds, next to the Imperial Museum. The Economic Court comprised of two temporary sheds to the south of the Art-ware Shed and the Southern Shed contained the major and more important part of the Economic Section of the Museum. The Industrial Court occupied a wooden annexe facing the Chowringhee Road, to the south side of the main entrance to the Imperial Museum. The total number of exhibits of old Bengal Economic Museum and others, got for the Exhibition were about 17,685. For several months after the closing of the Calcutta Exhibition, and until 9th September 1884, the Indian Museum had to be kept closed to the public. A large part of the Museum had been utilised for the Exhibition, wherein fixings had been set up for the purpose. The removal of the objects displayed and the fixings set up for the Exhibition had been a prolonged process. The pressure on space also came to be released when in 1884-85, the Trustees came into possession of the premises to the south and the east of the main building, originally meant for the Museum, but for long used by the Bengal Secretariat, pending construction and completion of their new offices. These premises were also occupied by the Calcutta Exhibition temporarily.

The collections of Art Economic products and manufactures, exhibited in the Calcutta Exhibition were completely handed over to the Trustees after the

Exhibition. Mr. A. Pedlar was placed in charge of the Economic and Art Museum, since 1884, and Mr. T. N. Mukherjee was the Assistant Curator. By 1884-85, the Trustees had to assume new responsibilities in respect of these collections, on the amalgamation with the Indian Museum, of the Art and Industrial collections which came from the old Bengal Economic Museum and other sources. By that time, even though the details of the new Department of the Museum, had not yet been fixed, the main conditions as to the accommodation of these collections were settled. By mutual agreements, the Trustees were to surrender to the Bengal Government the ground to the south of the Museum for the erection of Fine Arts Gallery and a School of Art, and the Government to build a continuation of the northern galleries of the Museum up to the eastern boundary of the Museum grounds to receive the ethnological, industrial and economic collections. This extension of the Museum building was already pledged to the Trustees of the Indian Museum in consideration of the great facilities rendered by them towards the carrying out of the Calcutta International Exhibition. These circumstances to a certain extent led to the amendment of the Indian Museum Act XXII of 1876, and the Act No. IV of 1887, received the assent of the Governor General on the 14th January, 1887.

By 1887-88, the construction of the building that was being pressed for by the Trustees along the Sudder Street, was started, the preliminary clearing of the site having been completed by then, and by 1890-91, the Sudder Street wing was completed to receive the collections taken over by the Trustees on the closure of the Calcutta Exhibition. As early as 1877, the Trustees felt that proper arrangements should be made to appoint a most competent Curator on a full-time basis, so that he would have the general charge of the whole Economic, Art and Ethnological collections. A sub-committee was appointed by them by about 1890-91, to examine and report upon matters related to the administration and future development of the Indian Museum, and the relation of the Trustees with the Imperial Government and the Provincial Government, consequent upon their taking over the Government's collections also under trust. That Committee, among other things, examined and reported upon aspects particularly relating to the

(1) formation of collections of Products of India for Imperial Institute and certain Museums in India which were being done hitherto by Government of India,
(2) temporary transfer of executive charge of the Economic and Art Section of the Museum, etc.

As a result of the report, the connection of Trustees with the work of forming collections of Economic products for the Imperial Institute was entirely severed, and the arrangement by which the Economic and Art Section was temporarily placed in the executive charge of the Officiating Reporter on Economic Products to Government of India remained in force. Edgar Thurston remained in charge of the Section till 23rd November 1893, and on that date he made over to Dr. George Watt, in accordance with the proceedings of a conference held in the Indian Museum on the 17th November, 1893. At the time of Mr. Thurston, the arrangement of the specimens in the new Sudder Street Building started and in August 1892, the arrangements in the Art Court was completed and this was opened to the public on 1st September, 1892. On 1st January, 1893, the Ethnology Section was opened to the public. Little progress had been made in regard to the Economic Court.

A new institution, under the Indian Museum had thus been established for treatment of Art, Ethnology, Industry and Economic products.

He rose to Stardom like a Rocket

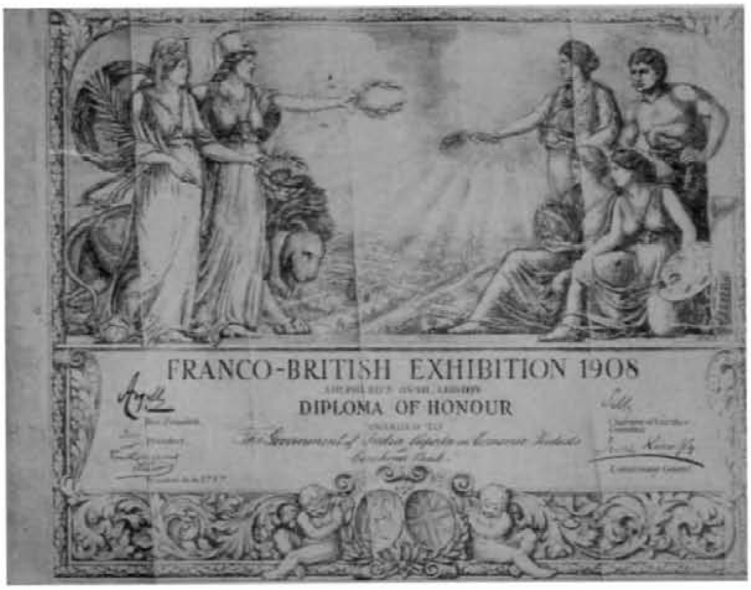
The further history of the Economic and Art Court of the Indian Museum, is linked up with a personality whose patience, precision, erudition, thoughtful consideration and thoroughness will live as a mark for any Museum-organiser to aim and achieve at. That personality is no other than Sir George Watt. In 1873, Sir George Watt was appointed in the Bengal Educational Service. He was a greater character than he was an educationist. In 1881, his services were placed at the disposal of the Chief Commissioner of Assam, and from 1881 to July, 1885, he had continued on the special duty assigned to him at Assam. In terms of Her Majesty's Secretary of State's despatch of 12th February, 1885, Watt was deputed to London on special duty, in connection with the Colonial and Indian Exhibition, and in which connection, the Government of India had done him the singular honour of entrusting to his charge, the compilation of a Dictionary of Economic Products of India. The proof-sheets of this stupendous compilation were scrutinised by such highest authorities in the World on Economic products as Sir J. D. Hooker of London, Prof. Fluckiger of Berlin and Dr. Rice of New York, who had paid glowing compliments to the work. The Dictionary of the Economic Products of India ran into several volumes, and the first volume made its appearance on the 12th July, 1885. According to Watt, these compilations were to serve as a nucleus of an extended and systematic enquiry into the productive resources of the Indian Empire. The expert knowledge Dr. Watt possessed of Economic Botany was primarily responsible for his services being requisitioned by the Government of India, in connection with the Calcutta Exhibition of 1883-84, to secure collections and their scientific arrangements. In addition he was required to take upon himself the collection of specimens for the Imperial Institute at London, which had been one of the duties of the Imperial Government of India, Revenue and Agricultural Department. His Royal Highness, the Prince of Wales, President of the Imperial Institute desired that active steps should be taken for the establishment of an India Court at the Institute, as a separate department to deal with the collection and dissemination of commercial intelligence so far as it relates to Indian Empire. On this, Sir F. A. Abel, the organising secretary, desired in February, 1888, that Sir Edward Buck of the Revenue and Agricultural Department in India, be placed in direct communication with the Institute, for the purpose of securing for exhibition in the Institute, a complete collection of specimens of the Economic products of Indian Empire, as well as products, illustrating Indian Industries. The Revenue and Agricultural Department of India took measures for the formation of such a collection as it was the official agency connected with exhibitions etc., and got them ready and despatched them from time to time. About Rs. 10,000/- was in all intended to be spent on the collections, by the Secretary of State for India at London. The Indian Section of the Imperial Institute, U.K., on the date of the opening by the Queen on 10th May, 1893, consisted of over 6000 separate samples of products, sent by the Revenue and Agricultural Department of India, the entire collection having been suitably exhibited in a classified order in the Indian Court. By this, a practical proof had been furnished of the utility of the Indian Court, at the Imperial Institute, in advancing knowledge in Great Britain, regarding the natural and industrial resources of the Indian Empire, and in adding to the commercial exploitations.

When Dr. Watt took over from Edgar Thurston, the charge of the Economic and Art Court of the Indian Museum on 23rd November, 1893, a stupendous work lay before him in regard to the arrangement of the new wing of the Indian Museum of Art and Economic Products. The condition of the exhibits that emerged from the Calcutta Exhibition had added much strain to his labours. Most of the exhibits had been destroyed and had become useless for exhibition purposes. The problems that faced him, were many. A thorough over hauling and re-orientation of the exhibition series with fresh collections was inescapable in the Sudder Street Building newly constructed for the Indian Museum. By his indomitable will and inimitable zeal, Sir George Watt revived hope for the Economic and Art Section of the Indian Museum. The Government of India had also appointed him as the Reporter on Economic Products to the Government of India with specific duties assigned to that post, and by about 1894-95, the Government of India, placed the office of the Reporter on a permanent footing, and sanctioned also the necessary clerical and other staff. Thus two more or less independent duties devolved on Sir George Watt, as Reporter on Economic Products to the Government of India, and Officer-in-Charge of the Economic and Art Section of the Indian Museum. The subjects mostly dealt by Dr. Watt as Reporter on Economic Products to the Government of India were more or less connected with the products and manufactures or the record of information regarding such, and thus the work done as Reporter was quite inseparable from those of the Officer-in-Charge of the Economic and Art Section of the Indian Museum.

As soon as he started his work on the Economic and Art Court, he caused separate registers being opened for each court, and introduced new systems of labelling. He made perfect arrangements for a regular flow of exhibits for the Museum, and there had been unprecedented increase due to the influx of commercial samples from the merchants of India, who most liberally responded to the appeal made during his various tours, and also through the ready and willing help of the Chambers of Commerce. He himself toured and made many valuable collections from different places. With such rapidly increasing collections, his greatest anxiety was to arrange all the Economic products in the Sudder Street building without delay, as otherwise that might only tend to deteriorate the valuable collections already in possession. He impressed on the Trustees by 1893-94, the necessity to take speedy measures to arrange the collections, and on this, the Trustees sanctioned Rs. 500/- for fitting up one bay of the gallery as an experimental measure. Sir George Watt designed the fixtures, and the fittings were completed within an year. The Trustees inspected the experimental gallery on the 24th January, 1895, and subsequently the Lt. Governor also visited the Economic Bay. The system adopted by Sir George Watt impressed the Lt. Governor so much that he decided to give effect to the entire scheme of fittings for the Economic Court designed by Sir George Watt. Chinese carpenters were engaged for the work, and by the 31st March, 1896, most of the portions of the gallery were completed with the fittings. Alongside with gallery fittings, the side-rooms adjoining each gallery were fitted up for poisoning specimens etc., and in the Economic gallery, the side-room was also designed to serve as a dark-room for photographic work. The wall-fittings in the Economic gallery consisted of an upright case, 7 ft. high, 4 ft. deep, a sloping desk case with glass-faces in front, 3½ ft. high, and a store-locker or cabinet below for reserve stock 2 ft. deep. Besides, there were also provisions for exhibiting numerous samples in index or store-boxes, running along the wall-space in each bay, throughout the length of the Economic gallery, of the same pattern as was designed by Watt, and constructed for Colonial and Indian Exhibition, and which was adopted also by the Imperial Institute, London. All the wall-fittings and cases were completed by 1896-97, on the design made by Watt, and on the plans approved by the Trustees, and these fittings were done under the supervision of the Executive Engineer in charge, Mr. B. K. Finnimore. Through M/s. T. E. Thomson & Co., the

INDUSTRIAL SECTION, INDIAN MUSEUM

Exhibition galleries which have greatest appeal to the young and old, the illiterate and literate.

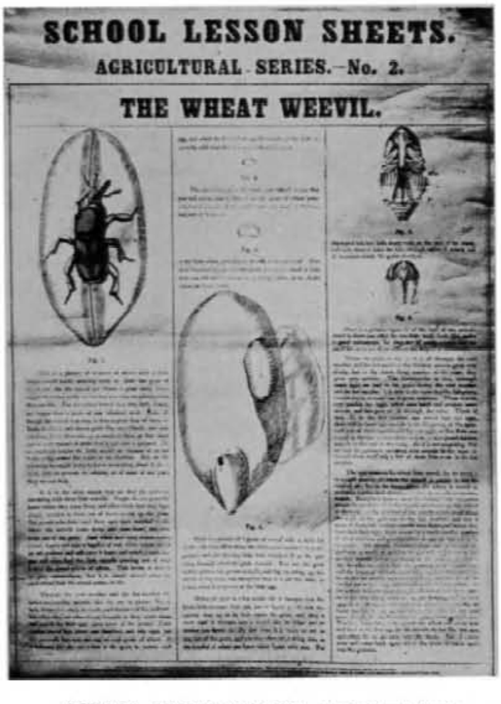


FRANCO-BRITISH EXHIBITION 1908

DIPLOMA OF HONOUR

The Government of India Reporter on Economic Products
Cinchona Bark.

A photostat copy of the Diploma of Honour conferred on the Government of India Reporter on Economic Products for CINCHONA BARK by the management of the Franco-British Exhibition 1908.



SCHOOL LESSON SHEETS.

AGRICULTURAL SERIES.—No. 2.

THE WHEAT WEEVIL.

SCHOOL LESSON SHEETS—Agricultural Series index-boxes of special design by Watt were made, according to definite specifications. Subsequently, several central show cases, for display of manufactures were also made by Mr. Finnimore, on the designs prepared by Dr. Watt.

While the fittings to the galleries were in progress, the Economic products had again to be removed to the godowns, resulting in temporary dislocation again. When the cases were ready, by 1895-96, the collections of Economic products from the store-rooms were brought back, and they were classified and exhibited as (1) primary products, in wall-fittings ; (2) products of secondary importance, in sloping cases ; and (3) products of tertiary importance, in index tins. The valuable Bengal Economic Museum collections were also utilised for the new Museum, and for decorative purposes, the numerous samples of rice of the Bengal Economic Museum in globular bottles were arranged in a row on the top of all wall-cases, and the specimens were so numerous as to go round the entire gallery. The effect was most pleasing and instructive.

The plan of the Exhibition-galleries and offices in the three-storeyed Industrial Building was also designed by Watt in such a way, that offices, work rooms etc. were provided in the ground-floor, the Ethnology gallery was located on the 1st floor, the Art manufactures of India on the 2nd floor, and on the topmost floor, the Economic Court, with the office of the Reporter on Economic products in a room on the northern end of the Economic Gallery, the Economic Metals and Minerals being exhibited on the opposite and of the same gallery. A lift was also originally provided for this building, but that had not been installed at all. In planning this arrangement of the various galleries in different floors, Watt had conceived of the idea that visitors passing from one floor to another, would be able to follow out the details of an industry from the raw products to the perfected article, or from the primitive attempts of the aboriginal tribes to the better examples of the skilled artisans, by the three galleries being worked into one system, which would also avoid unnecessary duplication and consequential extra expenditure. At the suggestions of Dr. Watt in 1896, an additional bridge was constructed connecting the Economic Section with the Geological and Zoological Sections in the Main Building.

The Economic Court thus arranged was ready for opening to the Public. But owing to the death of Her Majesty the Queen Empress, it was not possible to arrange for a formal opening of the Economic Court for the general public, on the appointed date. It was, however, opened to the public on the 29th May, 1901, with over 15,185 specimens, in addition to many articles belonging to the old Bengal Economic Museum. The collections continued to increase enormously in subsequent years also. It had many valuable and interesting Timber specimens, about 50 specimens of typical Japanese Timbers, presented by George King, several Australian Timbers, taken over with the collections of the Bengal Economic Museum, after the Calcutta Exhibition. A special feature of the Economic Gallery was exhibition of photographs of principal crops and forest trees, the negatives for which were lent by Mr. Lace from his admirable collections. The facilities afforded by the several Exhibitions as in the case of Antwerp Exhibition, and the work connected with the Imperial Institute, ensued a continuous supply of new specimens for the Economic and Art Court of the Indian Museum. The Museum grew rapidly in size and interest. The unassuming doorway led to a surprisingly large hall with thousands of specimens arranged scientifically in 8 bays, under separate categories as

(1) Gums, Resins, India Rubber, Lac, Kino,
(2) Oils, Oilseeds, Oilcakes, Soaps & Waxes,
(3) Dyes and Tans etc.
(4) Fibres, Silk, Cotton, Jute, Wool,
(5) Medicinal products and indigenous drugs,
(6) Narcotics, Opium, Indian hemp, Tobacco,
(7) Food substances, Sugar, Starch, Cereals, and
(8) Timbers.

In the centre of the gallery were displayed the finished and commercial articles, and along the walls of the bays in the racks were arranged alphabetically, all substances of the same class in glass-faced index-tins, with the object of giving in a bird's eye-view an illustration of the trade and commerce of the country. The Economic Gallery had thus turned out, once again, to be a most lively educational and recreational centre in Calcutta. The Reporter on Economic Products' assumption of charge of the Section, gave it a new regime with a new way of doing business, and it achieved notable success at home and abroad. The Economic Court's "New look", in its initial phases had a tremendous effect, and its interplay of alliances and relationships with outside organisations in India and abroad contributed greatly to its strength and success.

Better Pilots

Sir George Watt had an entirely revolutionary idea of an Economic Museum. This was to a certain extent influenced by the views expressed much earlier by Dr. Forbes Watson, as Reporter on Products of India, at India Museum, London. According to Watson, an Indian Commercial Museum, is not to be a *mere store* of various more or less interesting or curious specimens, from which the casual visitors, or even the students were left to extract what information they may, but as *a machine* especially designed for the accomplishment of certain well-defined objects. Watt's concept of an Economic Museum was also that it is not and it should not last as a repository of curiosities, with no practical relation to the trade and commerce of the province, and in this particular aspect alone, an Economic Museum differed essentially from all other Museums. It is with this basic principle he designed the Economic Museum, and piloted it through. The results of his varied activities were most commendable, and a few of such activities are alone reviewed here.

Imperial Institute

The work connected with the Imperial Institute and performed by the Reporter on Economic Products, on behalf of Government of India, had already been mentioned. Till 1893, the procedure followed was to send all specimens to Imperial Institute in the first instance keeping for the Economic Museum, the duplicates of those only which were received in sufficient quantities. In subsequent years, this policy was reversed, the Economic Section of the Indian Museum receiving all the specimens, and only such of the materials, the duplicates of which could be spared to Imperial Institute were sent. The work connected with the Imperial Institute was steadily growing and periodically reports on the programme of work for the Institute were printed and published together with "Fly-leaves" on the products dealt with. Yet another publication known as Imperial Institute Hand-books, which were essentially abbreviated Hand-books of Dictionary articles and products were also initiated in 1893. Later, this system was discontinued, and the hand-books were designed to incorporate new investigations. At the special request of India Government the Reporter issued at the same period a memorandum on the Resources of British India, which publication was in reply to questions raised by the Imperial Federation League. About 1400 copies were rapidly distributed, with several demands still pouring. Besides these, several monographs were also written by the Reporter on Art Manufactures of India.

Agricultural Ledgers and School Lesson Sheets

Besides the Hand-books, series of papers on various Economic subjects, having a close relationship to the articles displayed in the Economic Section of the Museum were also issued under the name of "Agricultural Ledgers". In the new scheme of Agricultural Ledgers, the revision of the Dictionary articles were envisaged. The ledgers for a year were issued in several numbers, and they dealt with a variety of subjects, as Agricultural, Vegetable products, Minerals and Metallic substances, Entomological, Implements and Machineries, Veterinary, Forests, Chemical, Crop-diseases and pests, and Miscellaneous.

W. R. Yates was appointed by Government of India as Superintendent of Ledgers in 1894. With this appointment, it became possible to maintain the ledgers up-to-date, at any time. The ledgers were arranged in one of the rooms on the top-floor of the Sudder Street Building. It originally consisted of about 200 boxes, arranged in alphabetical series according to the names of the products. In these boxes, the files and papers connected with the Economic products were kept. Each box contained then, on an average information regarding 54 subjects. The pages of the files were sewn into separate folios, each dealing with one subject. Each folio contained from 5 to as many as 200 or 300 passages. Cuttings of books, periodicals, official correspondence etc. were gummed on to these pages. Subsequently, the Dictionary articles on each subject were also placed in those folios, and following this, all current pieces of information from research publications were also placed. It was thus intended that one should be possessed of all available particulars in the form of cuttings from books, reports, correspondence, etc. up-to-date, arranged in a convenient form. By this means, it was possible to furnish at a moment's notice any desired piece of information, called for either by Government or by the public.

The system of "Ledgers" adopted by Watt was indeed most effective. These old ledgers are still preserved in the Industrial Section.

Besides Agricultural Ledgers, several printed Circular Notes were issued from time to time. Under the direction of the Trustees of the Indian Museum, School Lesson-Sheets were printed, in illustration of specimens exhibited in the Economic and Art Section. This new venture was started in 1894 itself and they had so much of an appeal, that demands for them were pouring from all provinces in India, from educational and other interested institutions.

Scientific Examination of Products

Another very important work in which the Economic and Art Section participated was the systematic examination of Economic products sent from the Indian Museum to Imperial Institute. In this work, in the earlier stages, the co-operation of such scientific men as Prof. Armstrong, then President of Chemical Society, London, Prof. Danston, Head of Pharmaceutical Research Institute, Great Britain, Prof. Hummel of Yorkshire College, Leeds, and others were enlisted, which resulted in very great scientific achievements.

Commercial Room set up

For the benefit of the local people, Watt set up by 1889-1900, a Commercial Room at the eastern end of the Economic Court, which was a commodious room furnished with tables, chairs, trade reports, directories, and other valuable literature. In this, interested visitors could study and examine any article of raw products, as also the files of correspondence and ledgers relating to them. The service rendered thus proved most valuable.

Economic Herbarium

In connection with the work of the Economic Court of the Indian Museum, Watt conducted several tours, and during these tours he collected several valuable plants of economic interest as well as commercial information. Among the very first series of collections made by Watt for this most valuable, and highly esteemed Economic Herbarium were several hundreds of specimens of different forms of cotton plants, as well as Museum samples, which he made in 1893-94, which proved to be the first of its kind in India, with botanical characters determined of different trade samples. George Watt walked many miles through cotton-fields, and conversed with cultivators. In this enterprise, he derived considerable help from Prof. Middleton of Baroda College and Mr. Mollison, Superintendent of Farms in Bombay, in matters relating to agriculture and commerce of cotton. In subsequent years, he explored extensively several tracts for Economic products, and he made very extensive collections of botanical specimens. of all wild and cultivated plants. These initial collections of Watt, formed the nucleus of an Economic Herbarium, which he organised on a scientific basis in 1896-97, and with such a facility, the Economic products in the Economic Court, became more intelligible to the researchers and visitors. The Economic Herbarium thus formed an inseparable unit of the Economic Court. Later additions to this herbarium in thousands, gave a distinct status of its own in the most important field of Economic Botany. This Economic Herbarium soon came to be regarded as an indispensable instrument for any investigation on applied Botany.

Laboratory

As early as 1897, the Trustees recognised the need for a Chemistry Laboratory in connection with the Economic Section of the Indian Museum. Mr. D. Hooper, who was the Quinologist to the Government of Madras was appointed as Curator of the Economic Section, on 2nd May, 1897, which post was held *sub-protem* for about 11 months prior to that date by Mr. W. R. Yates. The Trustees also sanctioned the cost of freight of chemicals and apparatus of the Quinine Department from Ootacamund on the Nilgiris in South India to Calcutta. Two of the large rooms on the western end of the ground-floor of the Industrial Section Building on Sudder Street, were fitted up for chemical investigations by 1897, and Mr. Hooper was placed in charge of this Laboratory. Chemical investigations on various samples were started by Hooper by 1897 itself, and included every year more than hundred samples on Tannins, Medicinal, Gums Soils, Soaps, Indigo, Kinos, Crude lacs, Rubber, Resins, Foods, Manures, Teas, Dyes, Oils, Oilseeds, Fibres, etc. As work progressed in the laboratory under Hooper, additional fittings by way of racks for chemicals, fume-cupboards, and gas connections to the laboratory were made under the orders of the Trustees. With the appointment of an Assistant Curator, Mr. R. H. Bunnell, on Trustees orders, on the 4th May, 1899, Mr. Hooper was relieved of a large portions of his day to day work in the routine management of the Museum, and as directed by Watt, Hooper could concentrate more on chemical investigations, which in later years came out as by far the important duty of Hooper, the results of which investigations were published from time to time in the Agricultural Ledgers, of which Dr. Watt was the Editor.

By this Watt-Hooper combination, the Scientific work of the Economic Section attained a high degree of efficiency. Several tests were made for outside parties also, such as for the Forest Departments, Director of Land Records and Agriculture, and other commercial and private organisations. The work turned out at the Laboratory of the Economic Section (which in later years—from 1901—had come to be designated as Industrial Section), had been of such a high order, that in 1907-08, the Hanbury Gold Medal of Pharmaceutical Society, had been awarded to Mr. Hooper for his work on Indian Drugs.

The Laboratory of the Industrial Section (the Economic Section of the Indian Museum), had become so popular, that even other organisations had obtained immense facilities. At the special request of the Indian Tea Association, that association was permitted by the Trustees to work in the Chemical Laboratory of the Economic Section, and Mr. Harold B. Mann, the scientific expert engaged by the Indian Tea Association, conducted work in the laboratory for several years. Mr. Hooper retired on the 1st February, 1914, and with effect from that date Mr. H. G. Carter was appointed as Economic Botanist.

Greatest Achievements

The foregoing account of the Economic Section will spot-light what important part that section of the Indian Museum had played in the realm of Economic Botany, Art and Industry. It became once again the country's best equipped Economic Museum, with various projects, in various stages of fulfilment. It had many functions, and all of them were potentially and functionally important. By its traditions, it had set up an example, but inimitable. The public galleries, enriched by numerous most valuable and impressive specimens from different sources, were heralded as undoubtedly the best Museum—a triumph of visual education.

Some of the techniques employed in this Economic Museum, in particular the Models, had greatest appeal even in outside countries. In 1899, on the visit of the President of the Chamber of Commerce, Hon. Mr. Sutherland, he caused to construct a complete series of models to exemplify every stage in the manufacture of indigo. This model of Indigo factory was so attractive that it was sent to London for Exhibition there in 1910, at the special request of M/s. Begg Dunlop & Co. This model after renovation is still to be seen in the Industrial Section, exhibited advantageously.

The collections of the Economic Museum, had attracted many foreign Museums, and there had been also regular supply of valuable exhibits to several outside organisations. To mention only a few among them, specimens were sent to the Imperial Institute, and to the Economic Museum at Kew, Frankfurt Museum, New South Wales Museum, and to other institutions in Scotland, America, which would indicate the wide interests that were established all over the world.

The Economic Museum, with its Laboratory had been the chief centre of attraction for many scientific and commercial organisations. The help rendered to Tea Association had alredy been referred to earlier. Besides, the Economic Museum became an important place of activity of the Indigenous Drugs Committee, which was appointed by Government of India by about 1897. The meetings of that Committee were held at the Industrial Section, and the section gave thus a vitality to the investigations connected with the Drugs and Medicinal portions of the Economic gallery. Also the surplus stocks of the drugs were deposited in the Museum, a portion of each was intended to be issued to certain Indian and Foreign Museums. The Section also became the depository of large supplies of the drugs issued by the Indigenous Drug Committee, as permanent records of Therapeutical, Chemical and Physiological investigations conducted on such products.

Naturally, therefore, the Economic Section could not have escaped the praise of men all over the World. The few references made below would be most interesting and revealing.

On the 14th July, 1899, the Indian Industrial Association visited the Economic Section of the Indian Museum. It had originally an idea of organising its own Museum of Industrial products, in a building of their own, built for the purpose at Bow Bazar Street in Calcutta. To gain a preliminary idea of the nature of the Museum they should organise, they had planned a visit to the Economic Section of the Museum. But on going through the galleries, the Association had to abandon the original idea, for in their own words—"With the existence of such a Museum, it would be a mistake on our part to urge on our first suggestion. . . . Under the circumstances we withdraw our formal proposal".

The Indian Tea Association, on its visit on the 9th March, 1900, expressed:

> "Dr. Watt is establishing a commercial Museum, which shall comprise species of all Indian Economic and Commercial commodities. . . . The system upon which it is being arranged by Dr. Watt, is, in their opinion, most admirably adapted for making the collections it contains of the greatest possible service to merchants and others in search of information regarding any particular article."

About 1900, Dr. Stuhlmann had paid glowing tributes to the Economic Museum, in his Studienreise nach Nieder landisch und Britisch Indien, Bericht II, on the impressions he gained of his visit to the Museum, and subsequently Prof. Rusby of New York had asked for a full description of the Economic Gallery, for constructing his own Museum of Economic Botany.

Those were, no doubt, the halcyon days for the Economic Museum under the admirable stewardship of Dr. Watt, who was later on succeeded by I. H. Burkill on 3rd April, 1901, and ably supported by Hooper, Yates and Carter.

That was more than Four-score and Eight years ago

Since Watt took over charge of the Art and Economic Section of the Indian Museum from Edgar Thurston, on the 23rd November, 1893, his services were extended for periods of three years, by the Government of India, and Watt remained in charge of the office of the Reporter on Economic Products to the Government of India, and the Art and Economic Section of the Indian Museum. At a conference held on 17th November, 1898, with E. C. Buck, Secretary to the Government of India, Revenue and Agricultural Department, Dr. G. King, Chairman of Trustees of the Indian Museum, and A. Pedlar, Vice-Chairman of the Trustees, Imperial Museum, at the Indian Museum, Calcutta, decisions were reached for the continued management of the Economic and Art Section of the Museum by the Reporter on Economic Products. By this, the Economic Section of the Museum, with the Economic Art-ware and Ethnological Galleries, came under the charge of the Reporter on Economic Products, the staff of the Economic Section, with the Assistant Curator Mr. Mukherjee, were placed under the Reporter on Economic Products for Museum purposes, and they were made responsible to the Trustees for arrangement of specimens, curing, and publication of catalogues; the Trustees will have power of deciding on the general method in which such work shall be carried out in the Museum; the Reporter will submit to the Trustees quarterly and annual progress reports dealing with Museum collections under his charge; all work connected with the Imperial Institute be carried out by the Reporter under orders of the Government of India, and shall be responsible to Government for the disposal of funds provided for the purposes, and Government of India to provide the necessary staff which will work in the Museum Buildings, where Reporter's office will also be; and the Economic Section staff may also be utilised, in cases of necessity. By 1899-1900, the Trustees of the Indian Museum felt the necessity to make a permanent arrangement for the management of the Art and Economic Section of the Indian Museum, by the Reporter on Economic Products, and after a mature consideration, they submitted a scheme which involved:

(1) the transfer of the Economic and Art Section from the authority of Bengal Government to that of Imperial Government.

(2) a complete revision of scientific staff of Zoological, Archaeological, and Economic and Art Sections, and

(3) placing of office of the Reporter on Economic Products to the Government of India under the control of one of the officers of the Museum.

At that time, under George Watt, W. R. Yates worked as Superintendent of Ledgers, and D. Hooper, as Curator of Economic and Art Section. During Dr. Watt's temporary absence, when he was appointed elsewhere, as Officer on Special Duty, I. H. Burkill received charge of the Economic and Art Section, (which by then had gained the appellation of "Industrial Section"), from Dr. Watt on 3rd April, 1901, and in this capacity Burkill continued till 9th February, 1902, when he handed over charge to Dr. Watt, on his return. But by 1903, I. H. Burkill had succeeded Dr. Watt, and as Reporter on Economic Products, and Acting Superintendent of Indian Museum, Industrial Section, he held charge of the Industrial Section, for years following, Mr. Hooper, continuing his work as before, as Curator, and also in charge of the Laboratory at the Industrial Section.

The Trustees' proposals to have a permanent arrangement for the management of the Industrial Section, came up again, and on the 12th April, 1905, the Trustees resolved that the Museum be conveniently divided into five sections, viz., Zoology, Ethnology, Geology, Archæology, and Art and Industrial, and all the sections placed under the control of a Director, who should also be the Inspector-General of Museums for India.

The Industrial Section was under I. H. Burkill, until 20th January, 1905, when he was incapacitated by a serious illness, contracted during one of his official tours in Hyderabad, which compelled him to leave on medical grounds. I. H. Burkill sailed to England on 6th May, 1905, handing over charge of the Industrial Section to D. Hooper. But by 20th October, 1905, Burkill returned and assumed charge of the Industrial Section.

When the Trustees' proposals for the re-organisation of the Museum, with different sections, reached a stage of finalisation, on the recommendation of the Board of Scientific Advice, which was constituted in 1908, it was decided that the work, hitherto done by the Industrial (=Economic) Section under the Reporter on Economic Products to Government of India, which represented the utilisation wing of the Botanical Survey of India, should be tagged on to the Survey. At the same time, the re-organisation scheme submitted by the Trustees was sanctioned by Government of India, early in 1911.

As a consequence, the office of the Reporter on Economic Products at the Industrial Section, Indian Museum, was merged with the Botanical Survey of India, from January, 1911. Statutory recognition, for the purposes of the Indian Museum, as also given to the Industrial Section, and the Indian Museum Act No. X of 1910, came into force, the earlier Act of 1887, having been repealed. And by this new Act, the Industrial Section came out to be a distinct and self-contained unit of the Indian Museum, and by that appellation.

The Trustees assumed some measure of control over the Industrial Section, for purposes of the Indian Museum, but at the same time, they had no obligations for financial and other assistance for the Section, which were the responsibilities of the Government of India. The Director of the Botanical Survey, became the Officer in administrative charge of the Industrial Section, and the Section passed on from the administrative charge of Mr. Burkill to Mr. A. T. Gage, the Director of the Botanical Survey. For the purposes of the Museum Act, the Director also became a Trustee ex-officio, on the Board of Trustees of the Indian Museum.

With these re-organisations in the old Economic and Art Court of the Indian Museum, several changes also occurred. Thus on 1st April, 1911, Burkill handed over charge of the Ethnological collections to Dr. Anandale, who was then the Superintendent of the Zoological and Anthropological Section of the Indian Museum. Likewise, Burkill handed over also the collections in the Art Court to Mr. Percy Brown, who was then the Principal of the Bengal School of Art. The composite nature of the Economic and Art Court was thus split up, and the Industrial Section came to be limited only to Economic Botany, and related industries. The designation of the Reporter on Economic Products to Government of India was changed to Economic Botanist to the Botanical Survey of India. I. H. Burkill became the Economic Botanist to Botanical Survey of India, and in this capacity, he served up to the 17th April, 1912, when he went on leave. Thereafter, Mr. Hooper officiated as Economic Botanist till 16th October, 1912, and on the resignation of Mr. Burkill, Hooper was appointed permanently to that post from that date. Hooper continued to examine various products in the laboratory. But with the retirement of Hooper, in 1914, the chemical part of the work hitherto done at the Industrial Section ceased and the laboratory was also dismantled. Hooper was succeeded by Mr. H. G. Carter as Economic Botanist in 1914. Curtailments of funds and facilities, and the meagre staff attached to the Industrial Section thereafter, precluded the possibility of any large scale work or investigations. Routine work connected with the maintenance of the huge public gallery became the only dominant activity. Even here large scale and new ventures proved extremely difficult. By

1922, the post of the Economic Botanist to Botanical Survey of India, was substituted by the creation of a new post of a Curator of the Industrial Section, to be in executive charge of the Section. With the taking up of the Cinchona work in respect of the Government of India by the Botanical Survey, the activities connected thereto were all done at the Industrial Section. The large supplies of Quinine stocks, Cinchona barks, and Quinine Sulphate were all stored in the ground-floor halls. In spite of all limitations, some activity, to the extent possible with the available funds and staff and other facilities, were being carried out in the Industrial Section, and they were directed towards preparation of catalogues, guide-books, collection tours to supplement the speciments in the reserve collections or replace the useless and unfit exhibits, and popularisation of Economic Botany through Museum Popular Lectures. organised by the Trustees, as a regular feature in their annual programmes, in two series, the Summer and Winter Courses of Lectures.

Mr. A. T. Gage was succeeded by Mr. C. C. Calder as Director of the Survey, and Officer-in-Charge of the Industrial Section, under the provisions of the Museum Act. Mr. Calder proceeded on leave preparatory to retirement on the 29th October, 1937, when the Curator became the Officer-in-Charge. He was also the ex-officio Trustee on the Board of Trustees, Indian Museum.

World War II dislocates the Museum

During the latter part of the year 1939 world events were moving fast towards war. The World War II broke out on the 3rd September, 1939. The Indian Museum itself was used as a leave centre for the Armed Forces during the World War II. Most of the galleries of the Indian Museum had to be dismantled, and the numerous exhibits they contained had to be packed and sent to places of safety outside Calcutta on account of the threat from air-raids. The Industrial Section had also to be dismantled more or less completely, and a great majority of its exhibits in numerous packed cases and the valuable Economic Herbarium were sent to Dehra Dun. The most valuable collection of books, periodicals and other literature in the library of the Industrial Section was also removed to Banaras. Within the great Halls of the Industrial Section Building, the heavy silence of the deserted rooms had a drama of its own. Several empty cases were disposed of in a zigzag manner, their glass-panes removed, and skylight and bay-window panes protected in all possible ways. With such enforced transformations of the large Industrial Gallery of Economic products, it was hard to believe that just three decades ago, it had been fitted up with exquisitely designed show-cases and running-racks, with several thousands of economic products, each telling its own interesting story, in a most impressive way. The complete dismantling of the galleries, the library, the laboratory, and to a certain extent, even the office portended a reversal of the progressive trend, and symbolised the end of an era of confidence.

The exhibits and the books that were sent out remained at outside stations for several years, in their unpacked conditions. The very nature of the materials, being mostly of vegetable origin, as leaves, roots, fruits, seeds, fibres and other plant parts and products, had further added to the deterioration, that was inevitable, and attributable to pests, moulds, and other destructive agents. Nature had also been to an extent unkind, for the books and other valuable literature sent out to Banaras were damaged to a considerable extent, on lying immersed in water for three days during the floods of the Varuna River at Banaras, in September 1943. It was a tremendous task to salvage, recover, and recondition the valuable collections of the library of the Industrial Section. The damages in certain cases were very heavy and the resultant loss was inevitable. But with greatest care, whatever could be recovered, were recovered, each and every damaged sheet receiving special care for drying under natural and artificial condition, piecing up and stitching and re-binding and reconditioning. This unforeseen event added to the unfortunate state of affairs of the Industrial Section, during the great war period.

Post-war Reconstruction

The World War II was officially declared ended on the 8th May, 1945. After the cessation of the War, the question of building up of the galleries, the re-arrangement of exhibits and re-organisation of the Museum and the Industrial Section naturally came up to the fore-front. For the period under occupation of the Museum by the Armed Forces, the Defence Services contributed Rs. 3,68,643/5/- as rent and as compensasion for the damage it did to the Museum buildings and partly for the dislocation it caused in the Museum activities. This fund came in hand to the Trustees for the restoration of the entire Indian Museum. A sum of Rs. 21,000/- was allotted from this fund towards preliminary restoration of the Industrial Section. It was decided by the Trustees that the restoration of the Museum should not be aimed at the mere placing *in situ* of specimens similar to the old, but should embrace, as far as possible, the technique employed in modern Museums. The Industrial Section attempted to employ the technique as far as possible within the limited funds and facilities made available to it by the Trustees, Indian Museum and also the Government of India. The results, even with this, were encouraging.

The post-war reconstruction of the dismantled gallery and library was a nerve wrecking work. The specimens which were kept for some years in a packed condition, had deteriorated considerably and thousands of specimens had to be substituted by fresh acquisitions. In most of the cases, the labels were lost or deteriorated beyond decipherment. The numerous collection of books, periodicals, pamphlets, journals, and other publications, suffered terribly on account of the Varuna floods, and their salvaging, and reconditioning was a herculean task, as in many cases the titles of the publications were completely lost, or their sequence were completely disturbed resulting in a promiscuous heap. The laborious task had, therefore, to be undertaken with great diffidence, but with the encouragement of the Government of India and the Trustees, progress was steady and marked.

The Industrial Section Gallery and the Library, had practically to be built up anew. Advantage was therefore taken to introduce several new features. In the gallery new system of labelling was introduced, and the specimens were exhibited in different classes according to their primary economic utility as Timbers, Food and Fodders, Medicines, Fibres, Dyes and Tans, Oil and Oilseeds, Gums and Resins, Agricultural products, and Miscellaneous. From the general exhibits, certain classes of specimens were drawn to build up special series of Exhibitions, which were more prominently displayed in the large show-cases along the centre of the Industrial Section Gallery. To increase the educative value, Dioramas were also introduced, and series of beautiful models of agricultural interest were prepared and displayed in prominent places, to tell the story of "Paddy from Grower to Consumer", and Cotton, Sugarcane, Coir etc., from "Field to Factory". These proved very attractive and instructive features of the gallery, with wide appreciation. A short Guide to the entire gallery was also published for the benefit of the public.

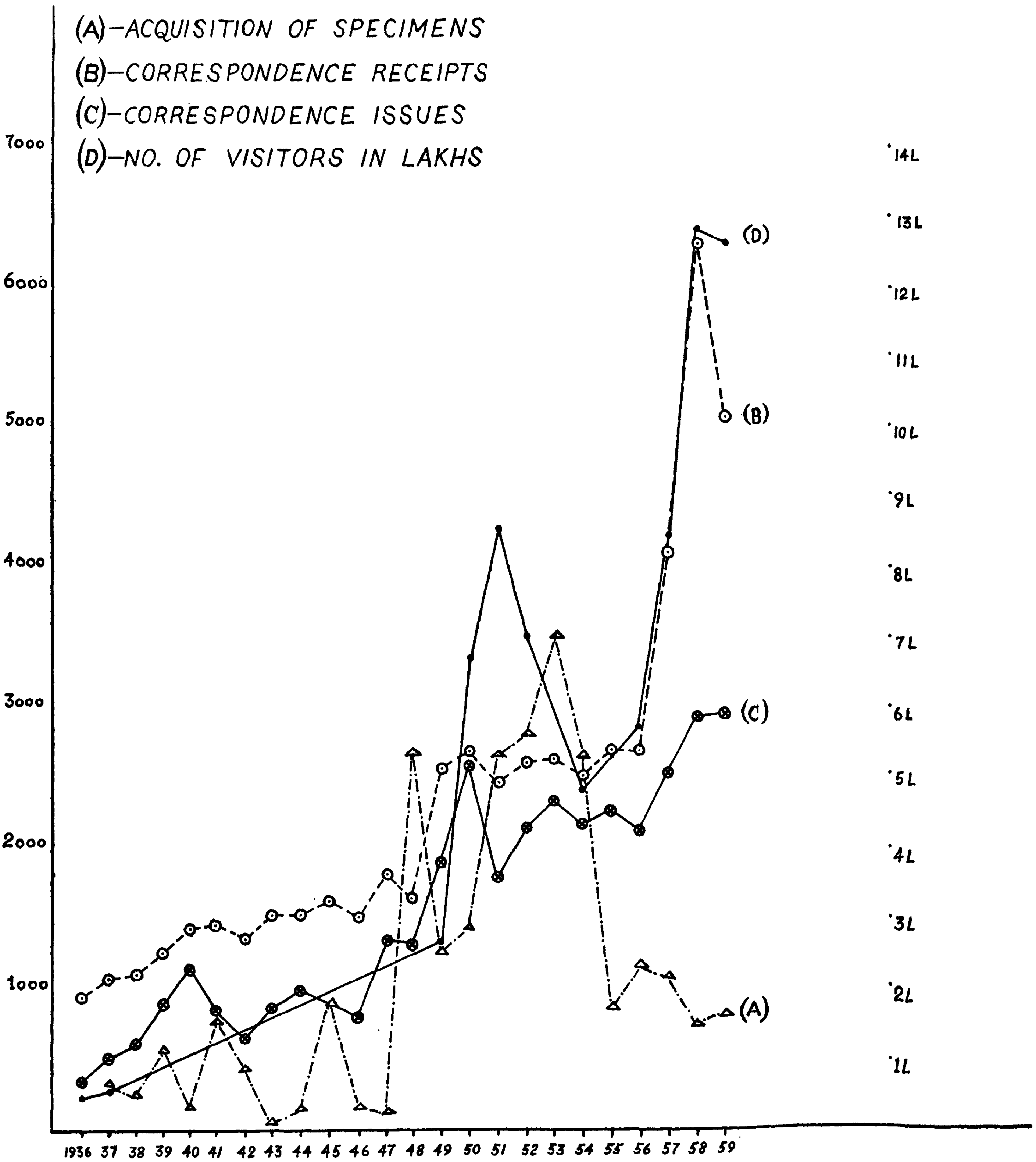
When the gallery was thus reconstructed, it was thrown open again to the public. But it was kept in view to completely re-organise the gallery, with the introduction of new features and new techniques. It was also keenly felt that with the re-organisation of the Industrial Section, there should be the revival of the various scientific activities and chemical investigations on plants and plant-products that were being conducted years ago. For a better appreciation of the newly reconstructed Industrial Section Gallery of Vegetable Products of Economic value of various categories, it was felt that a botanical gallery should also be organised at an early date.

With these objectives, a comprehensive scheme for the Industrial Section was drawn up by the present Curator, as early as 20th May, 1948, which was submitted to Sir Harry Lindsay of the Imperial Institute for expert opinion. He, in consultation with Sir Geoffrey Evans, then Economic Botanist at the Royal Botanic Garden, Kew, Dr. Bor and Dr. Howes, communicated their unanimous opinion that the scheme outlined was most suitable. The scheme *inter alia* provided for the change in the present appellation of the "Industrial Section" to that of "Economic Botany Section" which again to be made part of a "Botanical Museum" which was proposed to be organised anew. The Botanical Museum was to include major sections for Introduction to Plant Life, Morphology, Plant Physiology, Ecology, Taxonomy, Anatomy, Cytology, Genetics, and Evolution etc. In the Economic Botany Section, were envisaged Agriculture, Horticulture, Silviculture, Industries, and Plantation Crops. It was also aimed at utilising as many of the modern museum-materials in the achievement of the objectives, under visual and non-visual aids, to include illustrations, post cards, charts, paintings, micro-slides, film strips, actual objects, enlarged scale models, reduced scale models, working models, etc. It was also contemplated to introduce, within the availability of funds and facilities, such series of new and impressive exhibits as Dioramas, varnishing pictures, Travelogues, Informograph, Transparencies, Documentaries, etc. A laboratory for the various types of scientific work to be undertaken was also indicated as an indispensable component of the Industrial Section.

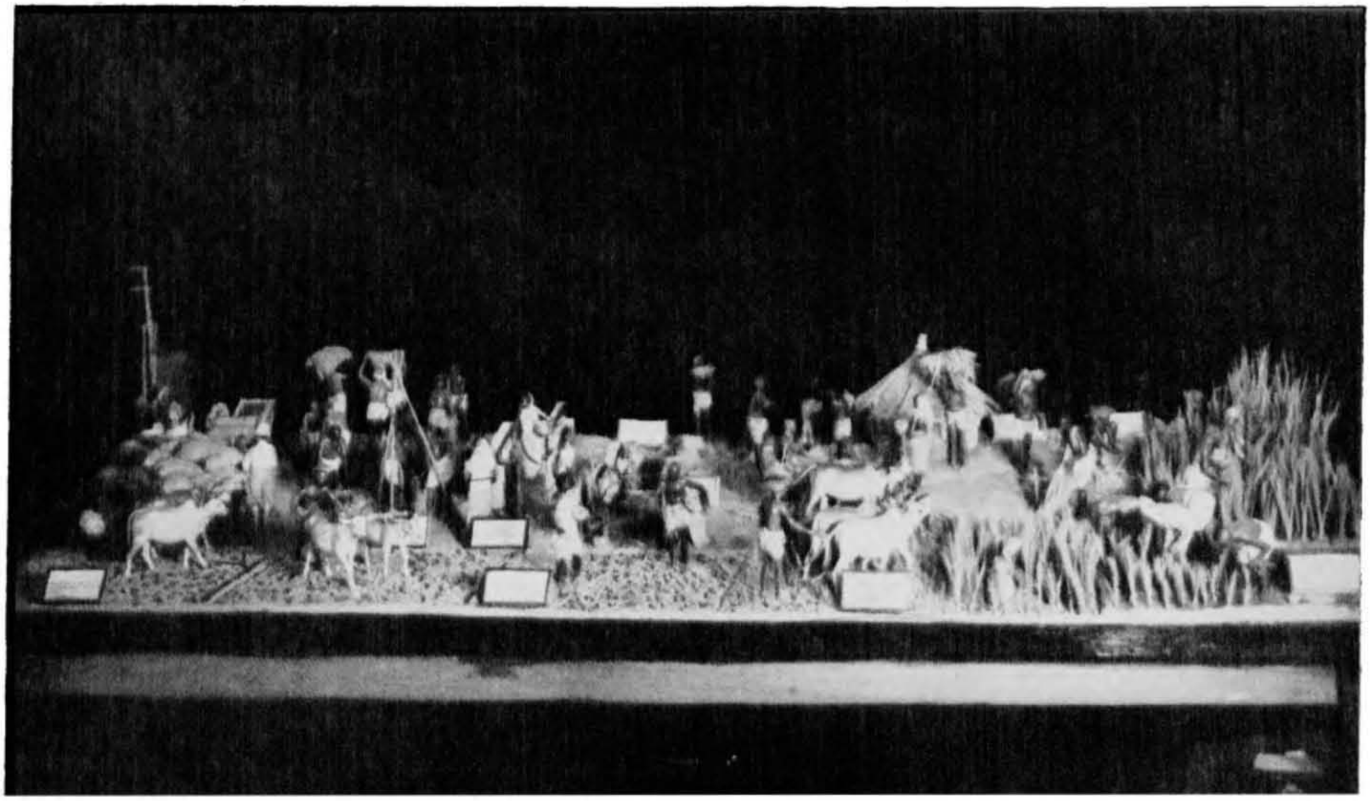
The subjects under Fundamental Botany and Economic Botany are so numerous, and they are admirably suited for treatment in a Museum. Besides these, it was also indicated that separate "Courts" should be developed on more or less a regional basis with the most important and characteristic plantation crops and industries illustrated, such as Bengal for Jute ; Travancore for Coir, Rubber, Tea, Cardamom ; Mysore for Sandalwood ; Madras for Millets, Rice, Ground-nut etc. ; Punjab for Wheat etc. It needs no special mention that when developed on these lines, the present Industrial Section will have greatest educative value. To the general public, this will be most inspiring as it would afford opportunities for them to know what Biology signifies and what Botany stands for. To the children, it will be most helpful in making them understand and assimilate the various aspects of Botany which are oftentimes not only terse but also too difficult to visualise from the knowledge acquired through books. A film-wing to the Industrial Section was also suggested as that would provide opportunities for treatment of a very wide range of subjects of general interest and having high educational and entertainment value.

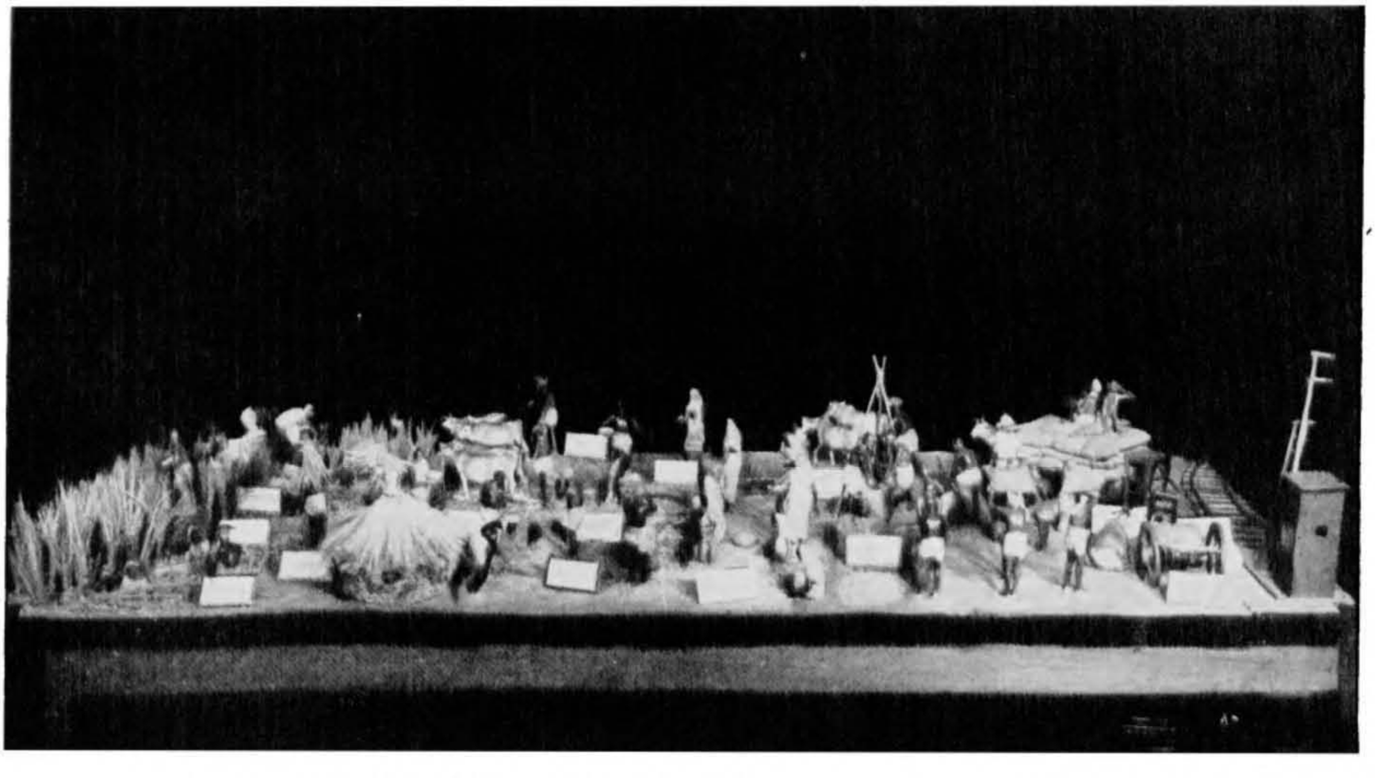
Strenuous efforts were made in some of the directions, during the post-war period, and the revitalisation of the Industrial Section can well be appreciated from the upward trend of its activities as illustrated in the accompanying graph.

The Library, the Economic Herbarium and the most important Ledger Section, were also restored, during this period. In the Library, a thorough re-arrangement was made, with the introduction of cataloguing systems. Card-catalogues, for the author, shelf-list and subject

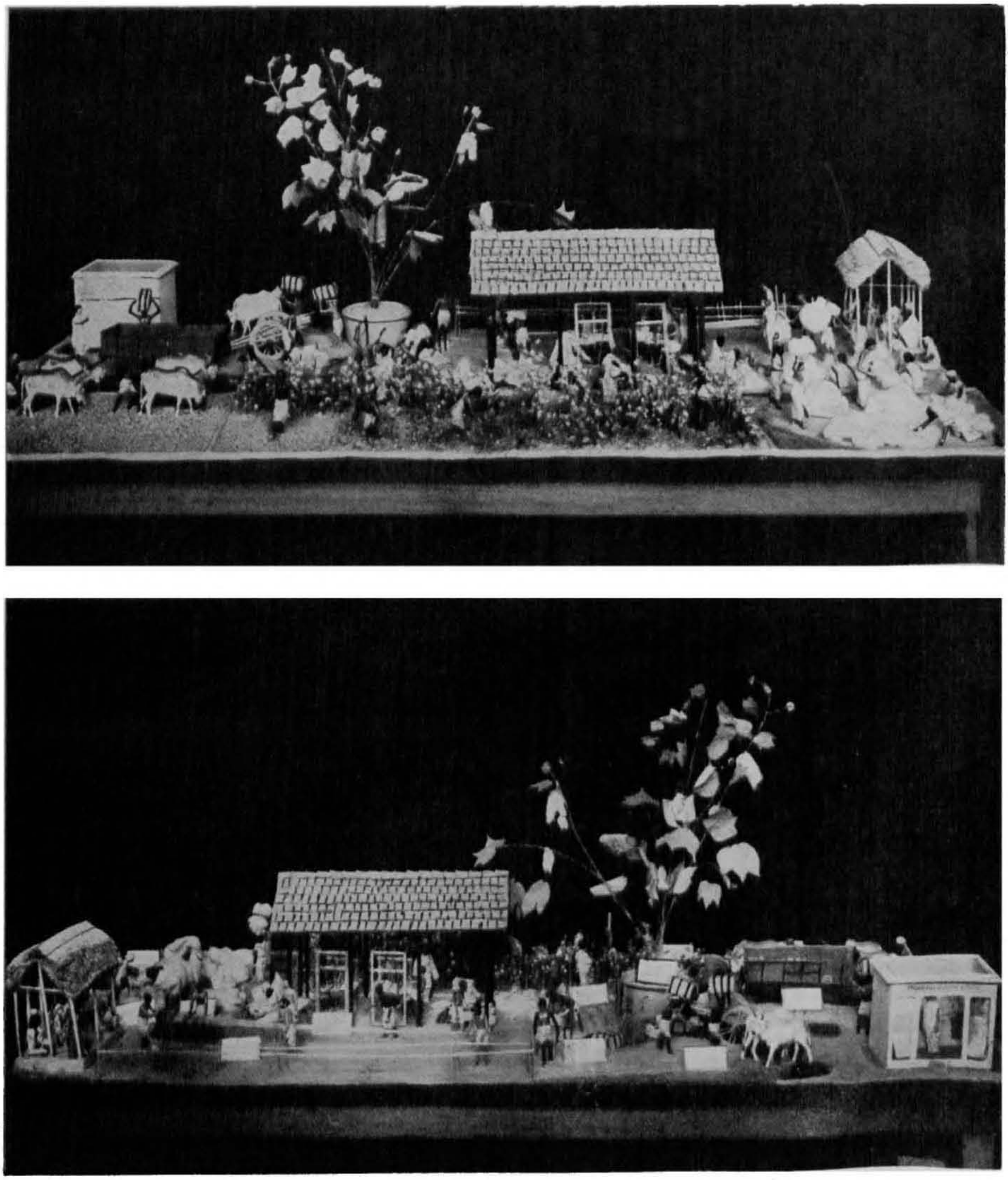


GRAPH INDICATING THE TREND OF ACTIVITIES OF THE INDUSTRIAL SECTION, INDIAN MUSEUM, FROM 1936–1959.





Details of cultivation and processing of paddy, carried through agricultural models in a series from 'Grower to Consumer'.



Companion series of Agricultural and Industrial models on Cotton indicating the process from 'Field to Factory'.

were introduced for the first time, following the Dewey's Decimal System. Different types of loose leaf ledgers and folios were opened for periodicals and other sporadic publications and the whole library was brought up to a high standard of efficiency. In the scheme for the management of the Library, periodical publication of Author and Subject Catalogues were initiated and some numbers have already appeared in print.

In the educational side, popular lectures were undertaken at specified times. Demonstration lectures were also introduced for the benefit of the University and College students, which were gaining considerable popularity, so much so, in the annual programmes of educational tours, many Colleges outside Calcutta had included visits to the Industrial Section. Participating in Exhibitions for various organisations was also another feature, carrying with it too frequent demands.

Fresh acquisition of Research materials and exhibits by conducted botanical tours to various places in India was another notable feature, which had added priceless collections to the Industrial Section. The Marine-algal collections, and particularly Herbaria, prepared with great care to preserve the colour of the specimens, are unique.

A new series of Water-colour paintings of Economic plants, prepared under a planned basis, has contributed to the highly appreciated section of the "Plant Portraits" in the gallery.

With the increasing tempo of activities, the educational policy was being more and more stressed, and the Industrial Section aimed at a combination of the two ideals, the aesthetic ideal and the educational ideal. Methods were indicated by which it would be possible to work out our system of education to meet our national requirements, which among others, included, organisation of loan-services, arranging special practical classes in the Museum, furnishing with information about materials in the Museum which may be used for visual education, practical demonstration and research, establishing exchange relationships in respect of specimens of interest, and making available the most valuable Museum materials for higher education and research.

The Industrial Section which had thus been enlivened, once again gained the distinction of being an important institution. Among its most important present activities are to be mentioned, on the Museum side—(1) The formation and exhibition of collections representing the important raw materials and manufactured products (mainly of India) maintained to illustrate the development of Agricultural, Commercial and Industrial progress in India ; (2) Visual education through demonstration lectures ; (3) Popularisation of Botanical science through Museum service ; (4) Compilation of catalogues and publication of guides and other scientific reports ; and on the Scientific and Technical side ; (5) Collection and dissemination of information concerning India's vegetable resources in general, and supply of information of a technical and commercial character to Government departments and public ; (6) Botanical exploration and survey for the Industrial Section of the Indian Museum ; (7) Collection of authentic materials and supply of the same to various parties in India and abroad for research work ; (8) Identification of specimens received from different parties from India and abroad ; (9) Ledgering of Botanical specimens and herbarium work attached to the Industrial Section of the Indian Museum ; (10) Maintaining technical index containing references to items of journals and other publications relating to many aspect of vegetable resources ; (11) Maintenance of ledger and product files ; (12) Fundamental research on problems relating to ecology, morphology and economic botany.

Even though the Industrial Section rose up to a level of efficiency in the recent years, it cannot be said that it had attained its full stature. The re-organisation of the Botanical Survey indicated that triumph was on its way, and it is hoped that in no distant future, the Industrial Section would develop into a full-fledged organisation to deal with all aspects of a Museum specially devoted to Economic Botany and its relation to mankind.

The account presented in these pages would clearly mark out that the Industrial Section's story is a record of a marvellous growth in the midst of opposing factors. It started when a puisne Judge wished to show the riches of the country to the people. To-day the 246 ft. by 43 ft. hall typifies the attraction centre of an Economic gallery in the Metropolitan Museum in Bengal. Its exhibits are varied and rich, imparting an information not easy to obtain from any other source. The more we learn of the rich collections in the Industrial Section Gallery, the more we recognise the incredible abundance of the vegetable life, in relation to their economic utility. Every day men, women and children from all parts of the country and even from outside, stand before the rich array of the collections, paying the tribute of spontaneous admiration to the talents of indomitable men, who contributed to the success of this Museum of Economic Botany. Its services to the University students, research workers, and industrial and commercial public had throughout been comendable that conclusion is possible that no University or institution has served a people more faithfully for such a long period than this amazing Industrial Section. When the Economic Museum was first organised in 1872, Sir George Campbell wrote "I am much pleased to know that so much has been done to carry to a successful issue an undertaking which I had much at heart. It gratifies me greatly to know that the Museum has both been fostered and protected by my successor in the Government of Bengal, and has been so ably and zealously worked by the Committee of Management. I am now very confident that it will be a success and a very great benefit to the country." To-day it is one of the liveliest educational and recreational centre.

In Museum organisations and administrations, bigger problems are already in sight with sparkling success in Foreign Museums, with the employment of modern techniques. It can be firmly said that Independent India, will ever infuse confidence in her Museum's resources in visual education. For want of proper appreciation among the majority of people, no institution, perhaps has ever been so little understood, so much depreciated, and so much misrepresented as unlively and monotonous as the Museums. Its very name damns it. It has come to stand for stagnation and frustration. The reason is, the infinity of problems that Foreign Museums now solve is not thoroughly understood by them, to place the Museum in its proper perspective. The new out-look of the Government of India, in her educational policies, particularly with reference to Museums, is most encouraging. There can be little doubt that Free India can help considerably in ennobling the new duties of the Museum, in its educational and research spheres. There can be little doubt that the Industrial Section can continue to live upto its name and tradition, dependent in large part, on the help and understanding it receives from the people and its Government; and we may renew our pledge to serve them with a greater zeal to perpetuate Museum's rich traditions.

Northern Circle, Botanical Survey of India, Dehra Dun.

HERBARIUM.